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DETERMINING EFFECTIVE LEADERSHIP BEHAVIORS

FOR USAF COMPANY GRADE OFFICERS

by

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14. ABSTRACT
Leaders need to emphasize different behaviors as they advance through increasing levels of responsibility (Jacobs and Jaques, 1985). This same thesis can be applied to Air Force officers?different behaviors are needed as an officer progresses from company grade to field grade to general officer (Yukl and Van Fleet, 1986). The purpose of this investigation is to determine the critical leadership behaviors required by junior officers at the direct level of responsibility in the USAF, and to determine differences in effective behaviors across major career tracks. A sample of 647 Squadron Officer School captains, who were between their fourth and seventh years of commissioned service, were administered Yukl?s Managerial Practices Survey (MPS). The modified MPS asked each subject to rate the importance of 11 managerial behaviors in relation to their current job. The behaviors included informing, consulting and delegating, planning and organizing, problem solving, clarifying roles and objectives, monitoring operations, motivating, recognizing and rewarding, supporting and mentoring, managing conflict and team building, and networking. The three most important behaviors identified were informing (M=4.4), problem solving (M=4.2), and planning and organizing (M=4.1). Least important was networking (M=3.4). Significant differences were also found between operations and support personnel. With these behaviors identified, senior officers should be better able to mentor and develop junior officers, and professional military education can be tailored to focus on those critical behaviors for effective leadership.

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Preface

I have long been fascinated by the concept of leadership. Mention the word and a host of ideas and definitions come to mind. Ask the question, "Are leaders born or made?" and you can talk for hours on end, and still never reach any firm conclusions. Any attempt to make this concept of leadership more concrete is an arduous task, and one that I don't expect to accomplish here. Instead, I hope to add to the ever-expanding body of knowledge by determining, for the first time, an empirical set of leadership behaviors critical to the junior officer. In this way, perhaps we can do a better job of mentoring our young officers and of developing curricula within our professional military education to help them improve their skills in the profession of arms.

I'd like to thank some very important people for helping make this project a reality. First, my wife, Marie, who watched me suffer those many hours over my laptop to make sense of this whole investigation. Next, to my ACSC Faculty Research Advisor, Major J. D. Garvin, who let me latch on to this brainchild after we discussed the nebulous concept of leadership over a cup of coffee. Finally, I need to thank the four other ACSC officers with whom I shared the survey, the data from the survey, and the sweat involved in capturing and analyzing the volumes of information: Majors Arnie Enriquez, Lista Benson, Kerry Phelan and Dierdre Dixon, all from ACSC Class of 1998. Semper Gumby!

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Abstract

Leaders need to emphasize different behaviors as they advance through increasing levels of responsibility (Jacobs and Jaques, 1985). This same thesis can be applied to Air Force officers—different behaviors are needed as an officer progresses from company grade to field grade to general officer (Yukl and Van Fleet, 1986). The purpose of this investigation is to determine the critical leadership behaviors required by junior officers at the direct level of responsibility in the USAF, and to determine differences in effective behaviors across major career tracks. A sample of 647 Squadron Officer School captains, who were between their fourth and seventh years of commissioned service, were administered Yukl's Managerial Practices Survey (MPS). The modified MPS asked each subject to rate the importance of 11 managerial behaviors in relation to their current job. The behaviors included informing, consulting and delegating, planning and organizing, problem solving, clarifying roles and objectives, monitoring operations, motivating, recognizing and rewarding, supporting and mentoring, managing conflict and team building, and networking. The three most important behaviors identified were informing (M=4.4), problem solving (M=4.2), and planning and organizing (M=4.1). Least important was networking (M=3.4). Significant differences were also found between operations and support personnel. With these behaviors identified, senior officers should be better able to mentor and develop junior officers, and professional military education can be tailored to focus on those critical behaviors for effective leadership.

Chapter 1

Introduction

The will to win is important, but the will to prepare is vital.

—Joe Paterno

Preparing tomorrow's leaders is one of our most important jobs as Air Force officers. As a result, the Air Force made mentoring—developing the potential of junior officers— an integral part of an officer's career development. Yet, we are left wondering exactly which leadership behaviors are the "best" ones to develop. Do all leaders, regardless of their position, need the same skills and behaviors? Is there, in fact, a specific set of behaviors junior officers can focus on to develop their potential for future leadership?

Defining what makes leaders effective is a tough task, though most contemporary research associates effectiveness with leaders' behaviors. Early work in this field led to the development of broad categories of effective behaviors such as consideration and initiating (Ohio State, 1946). However, these studies were incomplete because the categories were too broadly defined. More recent studies expanded the search for effective behaviors, but these also proved inconclusive, as they did not accurately account for the situation (Michigan, 1952; Bowers & Seashore, 1966). In fact, little attention has been given to specific leadership behaviors required in specific situations[1]. Likewise, there is little empirical data describing behaviors required for effective junior officer

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performance[2]. Thus, we ask senior officers to mentor subordinates, yet we have not empirically defined the critical behaviors required for junior officers.

Two developments may address this void in defining desired leadership behaviors. Yukl (1982) developed a taxonomy of specific leadership behaviors to address the concern of "what" behaviors to measure. Additionally, the situation may be better controlled by applying Jacobs' Stratified Systems Theory (1985), which maintains leaders require different behaviors as they progress in their careers (e.g. colonels require different behaviors than captains to be effective). By combining these two theories, we may be able to define specific behaviors required for a specific situation; in this case, specific behaviors most important to junior officers (Morabito, 1985; Taylor, 1997).

The purpose of this study is to determine the most important leadership behaviors required for junior officers in the USAF. The theory mirrors SST: junior officers should focus on different leadership behaviors because their span of control at the lowest level of the organizational hierarchy forces them to deal with less complex tasks. The study surveys captains at Squadron Officer School to identify the leadership behaviors they need for effective leadership. The study will discuss: the behaviors junior officers report are important to their current job; the behaviors junior officers report they need the most improvement; and a comparison of reported behaviors across different career tracks. With a set of leadership behaviors defined and prioritized, senior leaders should be better able to mentor junior officers, helping ensure a robust set of leaders for the next century.

Notes

[1] Yukl, Gary A., *Leadership in Organizations* (Englewood Cliffs, NJ: Prentice-Hall, 1989), 27

[2] Hurry, Linda S., "Measuring Behaviors of Air Force Officers" (Master's Thesis, AFIT, Wright-Patterson AFB, OH, 1995), 2

Chapter 2

Literature Review

It takes a great deal of history to produce a little literature.

—Henry James

Leadership has intrigued scholars and practitioners for quite a long time. Many have tried to capture a simple definition of this concept, while others have attempted to capture exactly what makes leaders effective. Despite decades of research, finding a common definition of "leadership" is a difficult proposition. "So, we have invented an endless proliferation of terms to deal with [leadership]…and still the concept is not sufficiently defined."[1] In addition, attempts to describe what makes leaders effective have proven even more elusive. Are leaders effective because of *what* they do and/or *how* they do it, or do effective leaders naturally possess certain *traits* which make them more likely to succeed? While there are no clear answers to these questions, the past 50 years of history has produced a wealth of literature on the concept of leadership. This chapter provides a historical review of that literature, and thus attempts to define "what" to measure in assessing leadership and how to "control" for situational variables.

General Types of Leadership Research

Leadership research has traditionally followed one of four approaches: power-influence relationships, leadership traits, behavioral, and situational.[2] The power-

influence approach assumes the essence of leadership lies in one's ability to influence followers. This influence is closely tied to the leader's source of power within the organization, and how the leader chooses to use that power over the subordinates. Thus, leaders use power to influence others to act in a certain way, and the amount of power they possess and exert determines how effective they can be as a leader. While most researchers acknowledge the validity of this approach, measuring the power wielded by a leader makes this research extremely difficult and largely impractical.[3]

The second approach focuses on specific traits leaders bring to their job. A fundamental assumption in this approach is that leaders are born, not made. Rather than using power to exert influence, leaders have "natural" traits or abilities that make them effective in leading subordinates. These traits may be related to the one's personality, abilities, or some combination.[4] In any case, the natural traits leaders possess determine their effectiveness because those traits appeal to subordinates and the organizational culture. Although leadership traits received much attention, the general conclusion after decades of research was that leaders were not truly "born." As it turned out, leaders were not fundamentally different than followers.[5]

For this study, a combination of the behavioral and situational approaches offers the best method in identifying "what" to measure. The behavioral approach emphasizes *what* leaders do rather than the traits they possess or the power/influence they wield. This research focuses on specific actions leaders take, independent of the natural traits they possess, to effectively lead subordinates. However, to be effective, the study must also include some control over the leader's situation. A situational approach considers different influences on the leader, to include: the nature of the task; the nature of the

external environment; and expectations of others.[6] In this way, the situation determines the leadership behaviors that are relevant.[7] As such, this study adopts the behavioral approach while incorporating situational considerations to determine "what" to study.

Behavioral Research

Ohio State University (OSU) Studies

Any literature review would be incomplete without mentioning the contributions made by the Ohio State University (OSU) in the early 1940s. The goal of OSU's studies was to identify leadership behaviors and relate them to effective leadership. Researchers began by brainstorming over 1,800 behaviors essential for effective leadership. After reducing the list to a more manageable 150 behaviors, the researchers employed factor analysis to narrow down the behaviors to two broad categories: considerate and initiating structure.[8] Considerate behaviors were primarily what we would call group maintenance behaviors today, while initiating structure behaviors were more task-oriented.

With the behaviors identified and validated, the OSU studies sought to find the relationship between leader behaviors and leader effectiveness. Using a questionnaire called the Leadership Behavior Description Questionnaire (LBDQ), Fleishman and Harris (1948) set out to demonstrate this relationship by examining the leadership effectiveness of shop foremen.[9] Their findings weren't overly surprising. Those foremen who demonstrated high levels of considerate behavior with low levels of initiating structure behavior had higher effectiveness ratings. The conclusion, then, was that a relatively high degree of considerate behavior with a relatively low degree of initiating structure behavior led to the most effective leaders in an organization.[10]

The results, however, had shortfalls. Most notable was the inability to establish a clear causal relationship between the leader's behavior and effectiveness. For example, did high considerate behavior result in more productive subordinates, or did productive subordinates simply elicit more considerate behavior from the leader? In the end, the most significant contribution of the OSU studies was some empirical support that effective leaders are considerate to their subordinates, and "this wasn't exactly [an] earth-shattering" revelation.[11] Despite these shortcomings, the OSU studies provided the first validated set of leadership behaviors and served as a basis for future behavioral research.

Michigan Leadership Studies

Shortly after the OSU studies began, the University of Michigan examined the same question—could leadership behaviors be defined and related to leaders' performance? Examining mid-level managers in manufacturing plants, the initial studies in 1952 tried to determine what patterns of leadership behavior led to effective group performance. Overall, the Michigan studies confirmed OSU's findings: considerate and initiating behaviors transcended all effective leaders. However, the Michigan studies also found that considerate and initiating behaviors were too narrowly defined—additional behaviors had to be defined to adequately capture the many tasks being performed by effective leaders. For the first time, researchers expanded the observed behaviors from the two categories of considerate and initiating to more specific behaviors within these categories, such as planning and scheduling.[12] This expansion set the stage for future research.

Bowers and Seashore Study

In 1966, Bowers and Seashore built upon the early studies at OSU and Michigan. They developed a Four-Factor Theory, expanding the two OSU behaviors into four new

categories. They postulated leadership behavior could be characterized into one of four categories: support, interaction facilitation, goal emphasis, and work facilitation (Appendix A).[13] The first two behaviors closely resemble OSU's considerate behavior, while the last two behaviors mirror OSU's initiating structure. Once again, the goal was to correlate leaders' behavior with leaders' effectiveness using shop foremen as subjects.

As with previous studies from OSU and Michigan, Bowers and Seashore got mixed results. For example, they could not establish a true causal relationship between leaders' behaviors and their effectiveness. Were leaders effective because they displayed these behaviors, or did leaders display these behaviors because the subordinates were successfully meeting organizational goals? Thus, their study reaffirmed the importance of the situation in determining essential leadership behavior. The nature of the task, the level at which the leader was performing, and the specific conditions under which the leader was operating determined the behaviors necessary for effective leadership.

While these early studies contributed a new body of knowledge to the leadership behavior field, they created difficulties for subsequent studies. As discussed earlier, none of the studies showed a causal relationship between behaviors and effectiveness. Also, leadership behaviors were always situationally dependent—none of the studies accounted for leaders' behaviors in light of internal and external factors. Finally, and most troubling, there was a lack of consistency in the behaviors investigated. Each study used a different set of behaviors; as a result, researchers could not consistently correlate findings across the various studies.[14] Fortunately, two subsequent investigations addressed these issues in an attempt to resolve the dilemmas presented by early behavioral studies.

Solving the Dilemma: Current Behavioral Research

Yukl's Taxonomy and the Managerial Practices Survey

Yukl was among the first to recognize the dilemma facing leadership behavior research. The absence of a single set, or taxonomy, of leader behaviors prevented researchers from comparing results. Prior to Yukl, many different taxonomies had been used with a number of different scales. Some taxonomies, like OSU's studies, were extremely general and provided too simplistic a view of leadership behavior. Others tended to be too specific, leading to results where no behaviors were "significant." However, Yukl noticed a commonality among all the taxonomies and set forth to define a set of leadership behaviors which were: (1) broad enough to allow recognition and relevance; (2) specific enough to be useful in determining leadership effectiveness within a given situation; and (3) valid to allow correlation and comparison across studies.[15] Thus, Yukl set out to universally identify the "what" to measure in leadership behaviors.

To fill this conceptual void, Yukl (1982) attempted to define a universal, valid taxonomy of leadership behaviors. His group developed a list of 21 behaviors in 1979. Subsequent studies and factor analysis reduced and collapsed the number of behaviors to 14, and finally 11. The 11 behaviors cover four broad categories: giving/seeking information, building relations, influencing, and making decisions[16] (Figure 1). More specific definitions and examples of these behaviors are presented in Appendix B.

Yukl's taxonomy brings a number of advantages. First, "it includes most behaviors found important in [previous] research, and it has a larger number of more specific behaviors than earlier [taxonomies]."[17] In practice, Yukl developed a taxonomy that can define critical leadership behaviors. Second, Yukl's taxonomy has a higher degree of
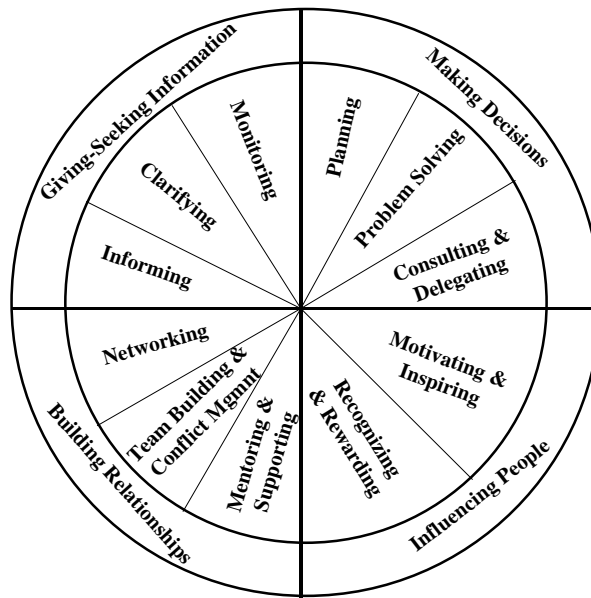
Figure 1. Yukl's Taxonomy of Leadership Behaviors

correlation with taxonomies used in previous studies (Appendix C). This allows for comparison of a common set of behaviors across studies to facilitate future research. Finally, the taxonomy can be used to define critical leadership behaviors in different circumstances. In other words, using Yukl's taxonomy, we can define critical behaviors in different situations, such as a leader's level of responsibility or the nature of his task. In this way, Yukl provides a construct for "what" behaviors to study. In addition, he also provides a means for "how" to study them through the use of a validated survey.

The leadership behaviors from Yukl's taxonomy are measured with a questionnaire known as the Managerial Practices Survey (MPS). The strength of this questionnaire is that it has been thoroughly validated through a number of studies. Each of the studies assessed the meaningfulness, validity, and reliability of the MPS and its scale by investigating the content validity, relevance to leadership effectiveness, internal consistency, stability of measurements over time, interrater reliability, discrimination of

contrasted groups, and criterion-related validity.[18] The validation program for Yukl's MPS was "more intensive and comprehensive than the validation research done on any previous leader behavior questionnaire"[19] and resulted in a widely-accepted, valid instrument for measuring leader behaviors. This study employs Yukl's taxonomy and MPS to measure specific leadership behaviors, solving the dilemma of "what" to study. Still missing, however, is a means by which the study can "control" the leader's situation.

Stratified Systems Theory…Toward a Hierarchical Leadership Model

If leadership is truly situational, then behavioral research must account for a leader's situation when defining desired or required behaviors. Jacobs and Jaques (1985) introduced the Stratified Systems Theory (SST), which describes leadership requirements at different levels of responsibility (or situations) within a bureaucratic organization. In general, this theory attempts to explain how leadership behaviors must change over time as leaders progress through the various levels of the organizational structure.

The SST breaks an organization into seven strata and three domains, or organizational levels (Appendix D). The theory postulates that critical tasks required of leaders differ across these organizational levels (domains).[20] Effective leaders recognize and deal with critical tasks at their particular level of responsibility within the organization. Simply put, leaders require different behaviors at different organizational levels within a unit, making those behaviors situationally dependent upon their position in the organizational hierarchy. Thus, Jacobs and Jaques propose a theory which links a leader's function to specific organizational functions by level.[21]

Military Studies in Leadership Behavior

Jacobs and Jaques' SST for civilian organizations was modified by the U.S. Army in Department of the Army Pamphlet 600-80 (DAP 600-80, 1986), "Executive Leadership." The pamphlet describes how leaders progress through three levels of leadership, "each with systematic changes in the nature of leadership tasks."[22] DAP 600-80 defines the three levels of leadership as direct, organizational and executive, mirroring the domains

LEVELS	SKILL CATEGORIES*		
Indirect Executive: Influence internal & external environments			CONCEPTUAL
Organizational: Influence organizations		INTERPERSONAL	
Direct Direct: Influence people & build groups	TECHNICAL		
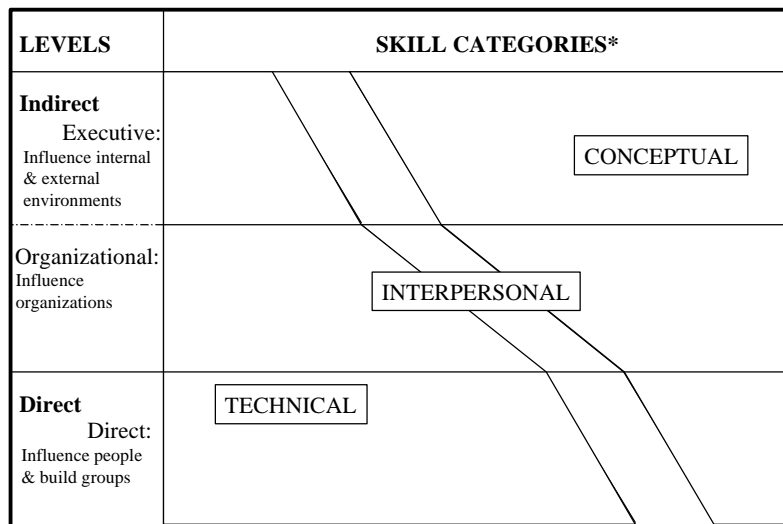
*Area reflects relative importance within hierarchy

Figure 2. Leadership Skills Required at Hierarchical Levels (DAP 600-80, p. 14)

from SST. While SST links the leaders' function to the domain in which they work, SST fails to describe specific behaviors required within each domain. DAP 600-80 attempts to fill this void by describing specific behaviors required at each level. For example, the pamphlet describes the direct level, consisting of lieutenants and captains, with the following behaviors: coaching, directing, motivating, and fostering cohesion.[23] While this serves as a starting point for defining behaviors as a result of the leader's situation

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within a unit, the behaviors listed in DAP 600-80 were not the result of a robust study. Instead, they were simply the authors' "best guesses." The lack of an empirical measure across the x-axis of DAP 600-80's "Leadership Skills" model (Figure 2) illustrates this shortfall in the theory's ability to identify specific behaviors.

Jacobs and Jaques built upon their 1985 SST by making two more developments to this line of research within the military organization. First, Jacobs and Jaques empirically established a three-tiered, military leadership model that resembled SST. Thus, SST has been expanded from civilian applications to military applications as well. Second, Jacobs continued his study of military leadership by developing the Strategic Leader Development Inventory (SLDI) in 1995. The SLDI is a survey instrument based upon the SST and is designed to help the Army describe more clearly the leadership skills required for officers to be effective at the strategic/executive level. The SLDI allows the Army to begin empirical measures for strategic behaviors. Unfortunately, the behaviors are once again unique and are derived for just one level of leadership—strategic.

This highlights a trend in military leadership research: a focus on behaviors required at the strategic, or highest, level of leadership. In fact, very little attention has been given to those skills required at the lower two levels.[24] Yukl and Van Fleet speculated that different leadership behaviors are "likely by level (company grade officers, field grade officers, and general officers)" within the military, though those behaviors have not been empirically defined.[25] In 1985, Morabito used a version of Yukl's MPS to determine critical behaviors required of junior aircraft maintenance officers. Over 700 officers were surveyed, and subjects rated their supervisors' and their own leadership behaviors which they felt were critical to their job as a maintainer.[26] As a result, Morabito empirically

described the leadership behaviors required for a certain set of officers within the direct level of leadership, but not for all officers within that level.

In 1997, Taylor followed a similar methodology as Morabito to define differences in leadership skills across job types and hierarchical levels in a flying training squadron. Using a modified version of Yukl's MPS, Taylor identified behaviors required at the different levels within a narrow career field. The study identified planning, informing and monitoring as the most important job-related behaviors at the direct level. It also found differences in how behaviors were rated across job types. Unfortunately, the results cannot be generalized across the USAF. The sample was homogeneous, containing only instructor pilots. Also, due to the small sample size (n=50), Taylor defined the levels of leadership differently than Jacobs and Jaques or DAP 600-80, placing captains in each level of the hierarchy. While this may have some validity in a small flying squadron, it does not translate well to the USAF as a whole. Finally, Taylor modified the scale on Yukl's MPS, using seven possible responses instead of five. This could have further complicated the findings because, as Yukl discovered during the validation of the MPS, "feedback was confusing for formats with many choices."[27]

All of the aforementioned studies advanced the body of knowledge in behavioral research, particularly within the military organization. However, given the shortfalls of these investigations, is there a better way to examine the leadership behaviors required at the direct level of leadership in the military? One approach may be to combine Yukl's taxonomy with SST and expand the Morabito and Taylor studies to a larger population.

Determining Effective Leadership Behaviors for USAF Company Grade Officers

The purpose of this investigation is to empirically determine behaviors required at the direct level of leadership in the USAF. Nearly every study in behavioral research concluded "leader effectiveness rests on situational determinants, whether the leader attribute studied is a trait or a behavior."[28] Thus, determining "what" behaviors to study while also finding a means of controlling the situation becomes the ultimate challenge. Fortunately, Yukl's taxonomy and MPS provide the *what* and *how* for determining effective behaviors. Additionally, Jacobs and Jaques' SST allows a *control* for the situation by examining only one level of the organizational hierarchy. Therefore, using both MPS and SST, it may be possible to determine behaviors appropriate for a specific situation—in this case, effective behaviors for USAF junior officers at the direct level. In its attempt to meet this goal, this study makes the following assumptions:
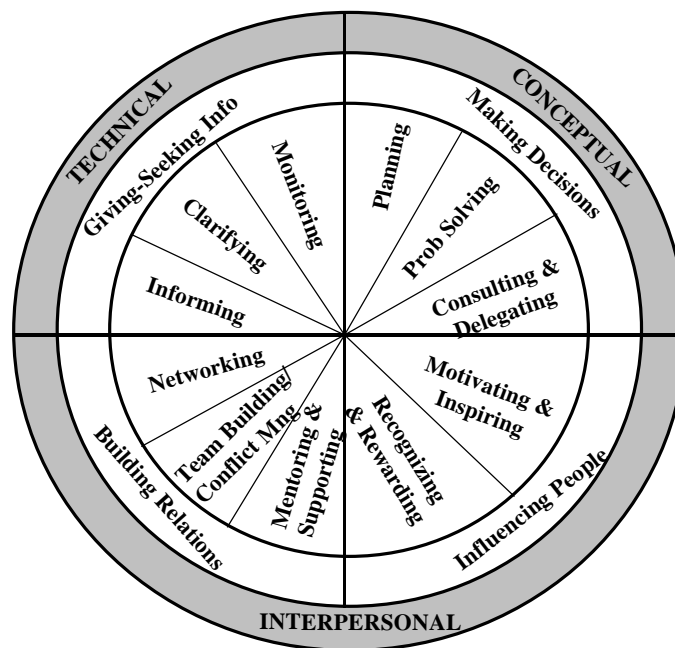
Figure 3. Yukl's Behaviors Correlated with DAP 600-80 Categories

A1: Yukl's behaviors can be translated into the three categories from DAP 600-80, as depicted in Figure 3, and

A2: Captains operate at the direct level of the USAF's organizational hierarchy.

The preceding review of behavioral research sets the stage for the development of hypotheses and research questions for this study of effective leadership behaviors. First, it may be possible to speculate which behaviors should be identified as most important at the direct level. Jacobs and DAP 600-80 describe the direct level with a high emphasis on technical skills, a low emphasis on conceptual skills and a relatively constant need for interpersonals (Figure 2).[29] In contrast, Morabito and Taylor found conceptual and interpersonal skills are important even at the junior officer level. In particular, Taylor's sample of 29 captains operating at the direct level reported planning, recognizing, and informing as the top three leadership behaviors. Morabito's results mirrored Taylor's, with planning, motivating, and clarifying roles as the top three. Thus, the two studies each revealed one technical behavior (clarify/inform), one interpersonal behavior (motivate/recognize), and one conceptual behavior (plan) as most important. Therefore, this study expects similar results, which leads to the first hypothesis in this investigation: informing, motivating and planning will be identified as the most important leadership behaviors to USAF junior officers.

Unfortunately, determining only the relative importance of effective behaviors may not be enough. Ideally, mentors focus on behaviors deemed most important as well as behaviors in which junior officers need improvement. Addressing behaviors that are both important and in need of further development increases the potential of that officer, meeting the goal of mentoring. Thus, this study also seeks to answer the research question: "Which leadership behaviors do junior officers need the most improvement?"

Finally, the responses should be situationally dependent upon the participants' career track, or AFSC category. Clearly the Michigan, Bowers and Seashore, and Taylor studies support such a hypothesis. In fact, Taylor found significant differences in self-reported behaviors when participants were asked to rate the importance of Yukl's behaviors in relation to their primary and secondary duties.[30] This leads to the final hypothesis: since different career tracks offer different challenges and different situations, one could expect operations and support personnel to have significant differences in the self-reported importance of effective leadership behaviors.

In summary, this study will determine effective leadership behaviors required at the direct level in the USAF by combining Yukl's taxonomy of leadership behaviors and MPS with Jacobs and Jaques' SST. Additionally, this study will test two hypotheses and attempt to answer one research question.

> H1: Informing, motivating and planning will be identified as the most important behaviors for USAF captains at SOS.

> RQ: Which leadership behaviors do USAF junior officers report they need the most improvement?

> H2: Significant differences will appear in the responses between operations and support personnel for USAF captains.

Notes

[1] Bennis, W.G., "Leadership Theory and Administrative Behavior: The Problem of Authority" (In *Administrative Science Quarterly,* 1959, vol 4), 259

[2] Yukl, Gary A., *Leadership in Organizations* (Prentice-Hall, 1989), 7

[3] Hughes, Richard L. Robert C. Ginnett, and Gordon J. Curphy, *Leadership: Enhancing the Lessons of Experience* (Irwin Press, 1993), 121

[4] Yukl, *Leadership in Organizations*, 8

[5] Hughes, et al, *Leadership: Enhancing the Lessons of Experience*, 141

[6] Yukl, *Leadership in Organizations*, 8

[7] *Ibid.*, 8

[8] *Ibid.,* 106

Notes

[9] Fleishman, Edwin A. and Edwin F. Harris, "Patterns of Leadership Behavior Related to Employee Grievances and Turnover" (*In Readings in Organizational and Industrial Psychology*, Yukl and Wexley, Oxford Univ Press, 1971), 282

[10] *Ibid.*, 287

[11] Yukl, *Leadership in Organizations*, 112

[12] *Ibid.*, 114

[13] Bowers, D.G., and S.E. Seashore. "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership." (*Administrative Science Quarterly*, 1966, vol 2), 241.

[14] Yukl, *Leadership in Organizations*, 120

[15] Yukl, G., S. Wall, and R. Lepsinger, "Preliminary Report on Validation of the Managerial Practices Survey." (In *Measures of Leadership,* Clark and Clark, 1990), 70

[16] *Ibid.*, 72

[17] Yukl, *Leadership in Organizations*, 128

[18] Yukl, Wall and Lepsinger, 227-233

[19] *Ibid.*, 236

[20] Jacobs, T.O. and Elliott Jaques, "Leadership in Complex Systems" (*In Human Productivity Enhancement*, Edited by Joseph Zeidner, Praeger Publishing, 1987), 13

[21] *Ibid.*, 17

[22] Department of the Army Pamphlet (DAP) 600-80, *Executive Leadership* (HQ, Department of the Army, 1986), 4

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[24] Hurry, Linda S., "Measuring Behaviors of Air Force Officers as Indicators of Effective Performance and Leadership" (Master's Thesis, AFIT, WPAFB AFB, OH, 1995), 2

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[26] Morabito, Michael A., "Analysis of Air Force Junior Aircraft Maintenance Officer Leadership Development" Master's Thesis (AFIT, WPAFB, OH), 7

[27] Yukl, Wall & Lepsinger, 226

[28] Jacobs and Jaques, "Leadership in Complex Systems" (in *Human Productivity Enhancement*, by Zeidner), 10

[29] DAP 600-80, 14

[30] Taylor, Ralph, "Redefining Leadership Skills For Instructor Pilots" (Research project, Embry-Riddle Aeronautical University, 1997), 19-21

Chapter 3

Methodology

There is no method but to be very intelligent.

—T.S. Eliot

Subjects and Population

The population for this investigation was 647 USAF captains attending Squadron Officer School (SOS) Class 98-A at Maxwell AFB, Alabama. The officers participated voluntarily, and the sampling technique used was holistic. Table 1 lists the demographic information for the sample. The sample is largely representative of the USAF and should be generalizable to captains across the entire Air Force. Additional demographics by specific career field show similar correlation between the SOS sample and the USAF

Table 1. Demographics (Sample vs. USAF)

	SOS Sample (n=569)	USAF* Population (n=27,743)
Male	83.6 %	82.2 %
Female	16.4 %	17.8 %
Line	84.5 %	75.6 %
Non-Line	15.5 %	24.4 %
Operations	50.4 %	47.7 %
Support	34.1 %	27.9 %
Rated Ops	33.4 %	34.2 %
Non-Rated Ops	17.0 %	13.4 %

*Source: HQ AFPC Internet Site, "Personnel Statistics" as of 14 Jan 98. Categories extracted from AFI 36-2105, *USAF Officer Classification*, and AF Visual Aid 36-211

population (Appendix E). Demographics also revealed most subjects were between their fourth and seventh years of commissioned service and supervised no more than 10 people. Although gender was captured, minority representation was not collected.

Instrument

The survey (Appendix F) is a modified, off-the-shelf version of Yukl's Managerial Practices Survey (MPS). Yukl's MPS has been extensively tested and is considered a reliable (r=0.9) and valid (r=0.4) instrument for measuring leadership behaviors.[1]

This paper and pencil version of Yukl's MPS asked subjects to self-report information concerning their current jobs in the Air Force in four sections. Section I captured the demographic information for each participant, to include gender, number of people supervised, years of commissioned service, and job task (AFSC). Section II asked participants to rate the importance of each of the 11 leadership behaviors to the subjects' current job. The instrument used a 5-point Lickert scale (1="not relevant", 2="slightly important", 3="moderately important", 4="very important", and 5="absolutely essential"). In Section III, participants were also asked to rate the three most important and three least important behaviors to being an effective leader in their current job. Finally, Section IV asked each participant to identify the one area where they perceived they needed the most improvement.

Design and Procedures

The survey was submitted to the ACSC Evaluations Department (ACSC/CVV) and approved by the SOS Commandant via a staff summary sheet. A pilot study was then conducted with an ACSC seminar to validate the instructions and the process for

collecting data. The survey was administered 3 December 1997 in SOS's Polifka Auditorium. DOD civilians and international officers were excused, and each USAF captain was given a survey. The survey administrator read the instructions, and the subjects completed the informed consent. The students then completed the survey in 15 minutes. The return rate was 87.9 percent. Student absences and incomplete surveys accounted for the other 12.1 percent. Data was manually input into SPSS for processing and analysis. Hypotheses were tested using $\underline{t}$-tests (2-tail significance) or ANOVA (Tukey-B) with an $\underline{\alpha}$=.05.

Limitations

The study has two unavoidable limitations. First, the subjects were students at Air University and may have been affected by the educational bias of SOS. This "Hawthorne effect" may have caused some subjects' responses to be influenced more by their SOS experience than by their most recent job, which could cause some skewing of the data. Second, the survey uses self-reported data from junior officers. It is entirely possible junior officers may place inflated or deflated values on specific leadership behaviors. Self-reported data is subject to many biases, from a desire to put down the "right" answer to a total disdain for the research effort. Additionally, self-reported data may not be the only vehicle for determining specific leadership behaviors required at this level. Senior officers and supervisors offer other perspectives to leadership behaviors required at the direct level, and these perspectives are not captured in this study.

Notes

[1] Yukl, G., S. Wall, and R. Lepsinger, "Preliminary Report on Validation of the Managerial Practices Survey." (In *Measures of Leadership,* Clark and Clark, 1990), 70

Chapter 4

Results

> *The way a child discovers the world constantly replicates the way science began. You start to notice what's around you, and you get very curious about how things work. How they interrelate.*

> —David Cronenberg

The results of this study are presented in three sections. The first section shows the self-reported importance of the 11 behaviors and their relative importance in terms of the three most important and three least important behaviors for effective leadership. The second section focuses on the behaviors juniors officers felt they needed the most improvement. Finally, the third section compares the responses across two major career tracks: operations versus support.

Importance of Yukl's Leadership Behaviors

Participants were asked to rate the importance of each of Yukl's 11 leadership behaviors in relation to their Air Force job. A 5-point scale was used, where "1" was "not relevant" and "5" was "absolutely essential." Table 2 shows descriptive statistics for how junior officers rated the importance and relevance of these behaviors for effective leadership. Overall, participants reported informing ($\underline{M}$=4.4, SD=.7), problem solving ($\underline{M}$=4.2, SD=.8) and planning ($\underline{M}$=4.1, SD=.9) as the most important behaviors. Least important was networking ($\underline{M}$=3.4, SD=1.1), while managing conflict and team building

(M=3.7, SD=1.0) and supporting and mentoring (M=3.7, SD=1.0) were closely grouped toward the bottom.

Table 2. Self-Reported Importance

Behavior	Mean	SD
Inform	4.4	.7
Problem	4.2	.8
Plan	4.1	.9
Consult	4.0	.8
Clarify	3.9	.9
Motivate	3.9	1.0
Recognize	3.8	1.0
Monitor	3.8	.9
Manage	3.7	1.0
Support	3.7	1.0
Network	3.4	1.1

n = 569

Participants were then asked to rate the three most important (M1=most important) and three least important (L1=least important) behaviors to effective leadership. Table 3 shows the frequency statistics for this section of the survey, with Σ_X representing the sum of the three previous frequencies. Since subjects could only mark each behavior once, Σ_X represents the total percentage of subjects ranking that behavior in the top three (Σ_M) or bottom three (Σ_L) in relative importance. The most important behavior was planning (Σ_M=56.6), followed by informing (Σ_M=50.1) and problem solving (Σ_M=36.3). This data crosschecks well with the descriptive statistics shown in Table 2. The three least important behaviors were networking (Σ_L=69.8), managing conflict and team building (Σ_L=39.2), and supporting and mentoring (Σ_L=39.0). Again, these frequency statistics are consistent with the descriptive statistics from Section II of the survey and Table 2.

Table 3. Relative Importance (%)

Behavior	M1	M2	M3	Σ_M	L1	L2	L3	Σ_L
Plan	24.8	18.6	13.2	56.6	2.4	3.6	3.5	9.5
Inform	22.0	15.1	13.0	50.1	1.4	3.3	3.3	8.0
Problem	14.1	12.7	9.5	36.3	1.7	5.2	4.9	11.8
Consult	5.4	12.1	11.8	29.3	4.9	5.6	8.4	18.9
Clarify	11.4	9.5	7.4	28.3	5.3	9.8	10.7	25.8
Motivate	8.3	9.3	10.0	27.6	5.1	9.3	8.8	23.2
Monitor	6.3	7.7	7.9	21.9	7.0	10.2	10.0	27.2
Manage	2.8	4.7	7.6	15.1	7.4	17.4	14.2	39.0
Support	1.9	4.0	7.6	13.5	9.7	17.0	12.5	39.2
Recognize	1.4	3.9	7.0	12.3	7.6	8.6	11.4	27.6
Network	1.6	2.4	5.0	9.0	47.5	10.0	12.3	69.8

n = 569

Behavior Needing Most Improvement

Once participants rated the importance and relevance of the 11 behaviors, they were asked to choose the *one* behavior in which they felt they needed the most improvement. The frequency statistics are presented in Table 4. The results clearly show three behaviors in which junior officers felt they needed help: planning (15.8%), motivating (15.3%) and networking (11.1%).

Table 4. Needs Improvement (%)

Behavior	%	CUM
Plan	15.8	15.8
Motivate	15.3	31.1
Network	11.1	42.2
Problem	9.1	51.3
Consult	8.4	59.7
Recognize	7.7	67.4
Manage	7.7	75.1
Support	7.4	82.5
Clarify	6.9	89.4
Inform	6.2	95.6
Monitor	4.4	100.0

n = 569

Comparison of Major Career Tracks

The final table shows the results from a one-way comparison of behavior significance means between two major career tracks. The response differences were tested using a 2-tail significance test. Significant differences ($\alpha \leq .05$) appeared between operations and support personnel in 7 of the 11 behaviors: consulting and delegating, planning, clarifying roles and objectives, monitoring operations, recognizing and rewarding, managing conflict and team building, and networking. In accordance with AFI 36-2105, *USAF Officer Classification*, the operations career track consists of pilots, navigators, space and missile operations, command and control, intelligence, weather, and operations support (AFSCs 11XX, 12XX, 13XX, 14XX, 15XX, and 16XX). Support personnel consist of all other AFSCs *except* medical (4XXX), professional (51XX and 52XX), and special duty (8XXX and 9XXX).

Table 5. Significance Tests (2-Tail): Operations versus Support

Behavior	Operations (n=287)		Support (n=194)		p
	Mean	SD	Mean	SD	
Inform	4.4	.8	4.4	.7	*
Problem Solve	4.1	.8	4.2	.7	*
Plan	4.0	.9	4.3	.8	.01
Consult	3.9	.9	4.1	.8	.01
Clarify	3.8	1.0	4.0	.8	.01
Motivate	3.8	1.0	3.9	1.1	*
Monitor Ops	3.7	.9	3.9	.8	.02
Support	3.6	1.0	3.8	.9	*
Manage Conflict	3.6	1.0	3.8	1.0	.02
Recognize	3.6	1.0	3.9	1.0	.01
Network	3.1	1.1	3.6	1.0	.01

Note: * indicates significance > .05 (no significant differences)

Chapter 5

Discussion

All meanings, we know, depend on the key of interpretation.

—George Eliot

This study has taken a step toward helping senior officers better mentor their subordinates by empirically defining, for the first time, effective leadership behaviors required for USAF company grade officers. Yukl's MPS and Jacobs' SST proved useful in describing the behaviors most important to effective leadership at the direct level in the USAF's organizational hierarchy. Furthermore, it helped identify those behaviors in which junior officers felt they needed the most improvement. Finally, this investigation found significant differences between the two major career tracks of operations and support, once again supporting the notion that effective leadership behaviors are largely dependent upon the leader's situation.

Importance of Yukl's Leadership Behaviors

The first hypothesis—that informing, motivating and planning will be identified as the most important behaviors for USAF captains at SOS—was not supported. Instead, informing ($\underline{M}$=4.4), problem solving ($\underline{M}$=4.2) and planning ($\underline{M}$=4.1) comprised the three most important behaviors in this investigation. This study expected the results to follow the same pattern established in the Morabito (1985) and Taylor (1997) studies, where the

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three most important behaviors consisted of one technical behavior, one interpersonal behavior and one conceptual behavior. In this study, two conceptual behaviors (problem solving, planning) and one technical behavior (informing) comprised the top three self-reported behaviors. While motivating was the highest-ranked interpersonal behavior, it ranked only sixth in overall importance. In fact, interpersonal behaviors consistently ranked lowest in importance. The three least important behaviors—networking, managing conflict and team building, and supporting and mentoring—were all interpersonal behaviors.

This finding seems to call at least one part of DAP 600-80's (1986) theory into question. This theory states interpersonal behaviors are least important to junior officers. This seems to be supported by the findings in this study. However, DAP 600-80 also stipulates technical behaviors are much more important to junior officers than conceptual behaviors. This study may indicate the exact opposite. In this investigation, junior officers reported two conceptual behaviors among the three most important to effective leadership. Ironically, the Taylor (1997) and Morabito (1985) findings actually support those found here, again refuting the theory put forth in DAP 600-80. Thus, it appears conceptual behaviors may, in fact, be the most important behaviors at the direct level.

Why did this study find conceptual behaviors so important? While the survey asked subjects to rank behaviors based on their current job, some subjects may have been influenced by the SOS curriculum (Hawthorne effect). For example, SOS places a high emphasis on problem solving with over 15 contact hours dedicated to this behavior. In contrast, motivating receives only 1 contact hour.[1] Thus, instead of focusing on their primary jobs, subjects may have focused on the secondary task of SOS. This could skew

the findings because, as Taylor found, there is a difference in the relative importance of behaviors between primary and secondary duties. A second explanation may be that today's junior officers (particularly support officers) operate at a higher level due to force reductions. As a result, captains may require more conceptual behaviors since they are filling billets designed for higher-ranking officers, who normally operate at a higher level of the SST. Forced into a higher rung of the SST hierarchy, junior officers may need the higher-order conceptual behaviors required of that higher-order level.

Behavior Needing Most Improvement

The second part of this study attempted to answer the research question, "Which leadership behaviors do USAF junior officers report they need the most improvement?" This aspect of the investigation yielded interesting results. Three of the 11 behaviors—planning, motivating, and networking—accounted for nearly 50 percent of the responses. Interestingly enough, the three behaviors were scattered across the importance scale. Planning was the second most important behavior, motivating sixth, and networking eleventh, or last. This indicates junior officers need improvement across the spectrum of behaviors, probably to address both current deficiencies and anticipated future needs. Thus, junior officers may recognize the challenges of future situations as they progress in the organizational hierarchy (Jacobs, 1985) and may want to improve those behaviors before they are placed in a new situation requiring them (Bowers & Seashore, 1966).

Planning and organizing is a behavior that junior officers felt was almost "absolutely essential" for effective leadership, yet was the one behavior in which they could use the most help. One explanation may lie in Yukl's definition of planning and organizing: "Determining long-term objectives/strategies…[resource allocation]…and improving

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coordination, productivity and effectiveness." At the direct level, junior officers are responsible for process improvements to improve productivity and effectiveness. One look at the emphasis on quality improvement in the USAF, especially at the direct level, bears this out. However, junior officers may also view this as a future need. Long-term objectives and resource allocations are requirements generally associated with more senior officers in the USAF. While some junior officers may be forced into doing these behaviors today due to the military drawdown and streamlining of organizations, most junior officers probably recognize that planning will become more important as they progress in the organization. Thus, they may view this as a need for future development in this critical behavior. Additionally, SOS stresses objectives, goal-setting, and resource allocation during the first week of the course.[2] Resource allocation receives even more attention during feedback sessions following leadership exercises. Thus, the importance subjects placed on planning and organizing, coupled with the emphasis placed on this behavior at SOS, may explain why this behavior was ranked first.

Hypothesis 1 in this study speculated that motivating would be one of the three most important behaviors identified at the direct level. While this did not happen, it was the second most frequent choice for the "needs improvement." As the military draws down further, the pace of operations remains high, and retention remains an issue, this behavior may become even more important. It may highlight the need for junior officers to motivate their subordinates, peers, and themselves to keep the enthusiasm level up in the face of high "ops tempo." This may also be a sign of a future need. Junior officers may realize that as they progress to higher ranks and their span of control increases, motivating more subordinates may be a critical behavior. Finally, this may be a

reflection of the participants having had an SOS lesson on "Motivational Applications" just 2 days prior to this survey. With the lesson fresh in their minds, it may reflect their realization of how much they need to learn, or it may be a comment on the lesson itself.

Although ranked last in importance, networking was one of the top three behaviors needing improvement. Since most subjects were between their fourth and seventh years of commissioned service, they have spent the majority of their career becoming experts in their respective career fields. As such, they have had little interaction with other career fields across the Air Force. SOS provides junior officers their first opportunity to work with officers outside their primary career field. This becomes their initial exposure to networking and developing contacts for the future, which may explain its mention here.

Comparison of Major Career Tracks

The second hypothesis set forth in this study, that "significant differences will appear in the responses between operations and support personnel, was supported. The $\underline{t}$-test showed differences between operations and support in 7 of the 11 behaviors. This finding supports the theories that indicate effective leadership behaviors depend upon the leader's situation (Bowers & Seashore, 1966). Furthermore, it supports Taylor's (1997) findings where subjects rated the relative importance of Yukl's behaviors differently across job types (between primary and secondary duties). Finally, comparing Morabito's (1985) study on maintainers with Taylor's study on pilots shows significant differences in reported behaviors between the two groups of subjects. This study finds the same phenomenon across a broader grouping of these two career fields: operations and support.

A closer look at the data shows operations personnel consistently rated every behavior lower than support personnel did. At first glance, it may seem the differences

were simply due to scale interpretation. However, this conclusion may be shortsighted.

As an example, the importance of recognizing and rewarding was significantly different

between the two career tracks. More revealing, however, is this behavior's relative rank

in importance. Operations personnel rated this behavior next-to-last in importance, while

support personnel ranked it sixth (Table 5, page 24). This could be related to the number

of people supervised. Over 36 percent of all support personnel supervise more than 10

people, while only 14 percent of all operations personnel have the same supervisory

responsibility (Table 15, Appendix E). Perhaps recognizing and rewarding behaviors

become more important as the number of people supervised rises, which could explain

the significant difference found in the $\underline{t}$-test. These differences could be the result of the

subjects' situation (Bowers & Seashore, 1966) and must be explored further before

simply dismissing them as a matter of scale interpretation.

Implications and Recommendations

Implications

This study's results lend validity to the Morabito (1985) and Taylor (1997) studies,

as some behaviors were common across the three investigations. However, it tends to

question some theories put forth by Jacobs (1985) and DAP 600-80 (1986). Two of the

top three behaviors in this study were conceptual in nature, which indicates conceptual

behaviors may be far more important than DAP 600-80 envisioned. As such, conceptual

behaviors may be more important at the direct level as the force draws down from its

highest peacetime strength, which ironically coincided with DAP 600-80's publication.

A second explanation is related to DAP 600-80's relationship to Jacobs' SST. Captains

may not be operating at the lowest (direct) level; instead, they may be at the middle (organizational) level in the SST hierarchy, where conceptual behaviors are theoretically more important to effective leadership (Jacobs, 1985). As a result, one's position in the SST hierarchy may be less dependent on rank than on the leader's situation, such as number of people supervised or specific AFSC.

Fundamentally, this study successfully determined a prioritized set of behaviors required for effective leadership at the direct level in the USAF, filling a void in this area of research (Hurry, 1995; Yukl and Van Fleet, 1986). Since the demographics from this sample closely match the USAF as a whole, the findings should be generalizable to the entire Air Force. Thus, the three most important behaviors highlighted in Figure 4 and the 11 prioritized behaviors identified in Table 16 (Appendix G) can be considered the most effective behaviors, in order of importance, for junior officers in the USAF.
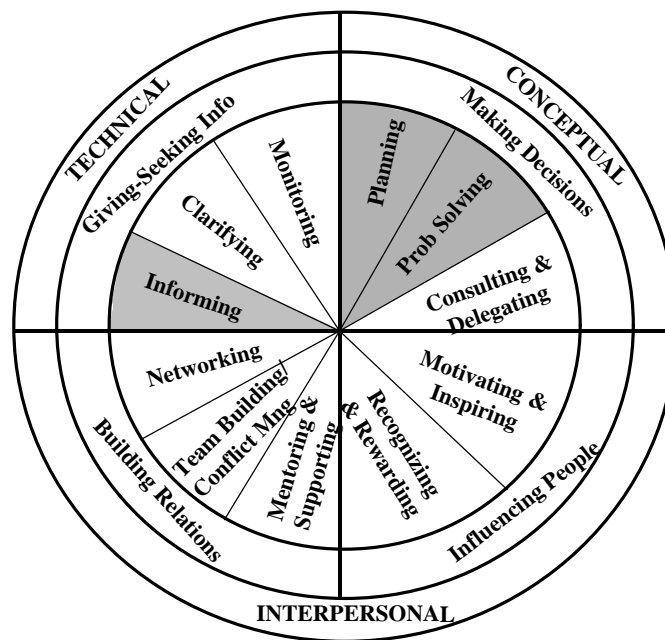
Figure 4. Most Important Behaviors (Entire Sample)

With the most important behaviors identified, this study can serve as the basis for mentoring and training junior officers to enhance professional development. However, one can ask, "Which behaviors should be the focus for the junior officer's career development: the most important or those most in need of improvement?" Clearly, an officer needs to develop all 11 leadership behaviors, but concentrating on a combination of these two categories will likely bring the most "bang for the buck." Therefore, mentoring and training junior officers primarily in planning and organizing, informing, problem solving, motivating, and networking should yield the most beneficial results.

In light of this discussion, it may be worthwhile to explore the curricula junior officers are exposed to at both technical and professional training. For example, SOS dedicates almost the entire first week of their 7-week curriculum to presenting leadership tools. While planning and problem solving receive much attention, motivating receives relatively little. Similarly, SOS dedicates 20 contact hours to formal communication skills, yet very little to the informal communication skills required to be effective in the informing behavior.[3] With the Air and Space Basic Course starting in 1998, it may be a good time to match its curriculum with the needs reported by junior officers in this study.

Since leadership is situational, as Michigan (1952) and Bowers & Seashore (1966) revealed, then perhaps different training and mentoring may be required across different career tracks. This study highlighted significant differences between the operations and support career tracks. While the most important behaviors identified in this study may be a good start for training or mentoring a large, heterogeneous group, individuals in specific career tracks may need different behaviors to be effective leaders.

Recommendations

This study, like many others in behavioral research, answered some questions but raised several others. Since behavioral and situational research on junior military officers is limited, future research could focus on some of the nuances uncovered in this study. First, there may be additional factors that drive significant differences in the self-reported important behaviors for junior officers. Thus, another study similar to this one in which different control variables were explored could be extremely informative. For example, what impact does the number of people supervised have on the effective behaviors? When collecting data for this study, 2-tail significance and ANOVA tests revealed differences between line and non-line officers (Appendix G), between males and females (Appendix G), and between specific career fields (pilots and medical). Could this hold true for other career fields also? Finally, does prior enlisted service or commissioning source have any influence on the behaviors required to be an effective leader?

Jacobs' SST theorized officers require different skills and behaviors as they progress through the organizational hierarchy to be effective. This study indicated captains may be operating at a higher level than that stipulated in Jacobs' SST. As such, it opens the door to explore *when* officers transition between levels in the SST, which would be a signal of *when* officers need to focus on different behaviors to be effective. Thus, it could help indicate when mentoring should focus on current needs and when it can begin to focus on an officer's future needs as well.

Conclusion

This study adds to the existing research on leadership behaviors and their relevance in varying situations. Using a modified version of Yukl's MPS, this investigation had

three key findings. First, it determined the relative importance of Yukl's behaviors for junior officers in the USAF. The most important behaviors were informing, planning and organizing, and problem solving, while the least important were networking, supporting and mentoring, and managing conflict and team building. This represents the first time effective leadership behaviors have been empirically defined for the USAF junior officer, filling a shortfall in this area of the research (Hurry, 1995; Yukl and Van Fleet, 1986).

Additionally, junior officers highlighted those behaviors where they felt they needed the most improvement. Subjects felt they needed the most improvement in planning and organizing, motivating, and networking. Interestingly, these behaviors spanned the scale of importance identified earlier in the study. These behaviors ranked second, sixth, and last, respectively, in the relative importance scales. Finally, the study found differences between two major career tracks. Operations and support personnel had significant differences in importance for 7 of 11 behaviors: networking; consulting and delegating; planning and organizing; clarifying roles and objectives; monitoring operations; recognizing and rewarding; managing conflict and teambuilding.

Several implications can be drawn from this study. Most importantly, with a set of effective leadership behaviors identified, senior officers and supervisors can mentor junior officers in those behaviors which are most important and which require the most improvement. Similarly, professional military education can examine their curricula to determine if these behaviors warrant special attention and focus for junior officers. Additionally, this study seems to indicate a leader's position within Jacobs' SST depends more upon their situation (e.g. job type) than their rank, supporting the findings on the importance of the leader's situation in determining the appropriate behaviors (Michigan,

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1952; Bowers & Seashore, 1966; Taylor, 1997). Finally, this investigation shows conceptual behaviors are most important to junior officers while interpersonal behaviors are least important. This may be due to junior officers operating at a higher level (organizational versus direct) than that proposed by Jacobs' SST, or it may reflect the emphasis SOS places on conceptual skills within the curriculum.

Future research should continue to explore the relationship between leadership behaviors and effectiveness. Specifically, what differences exist across different career fields and why? What effect does a leader's situation (number of people supervised or officer's commissioning source) have on those behaviors needed for effective leadership? Finally, at what point do the effective behaviors change as the officer progresses through the organizational hierarchy (SST)? Answers to these questions will ultimately lead to a more thorough understanding of this complicated, multi-faceted concept of leadership.

Notes

[1] "SOS Lesson Planning Sheet," dated 5 Jan 98, as published by SOS/DC (Directorate of Curriculum)
[2] *Ibid.,*
[3] *Ibid.,*

Appendix A

Bowers and Seashore Four-Factor Theory

Table 6. Bowers and Seashore's Four Factors

Leader Behavior	Definition
Support	Behavior that enhances someone else's feelings of personal worth and importance
Interaction Facilitation	Behavior that encourages members of the group to develop close, mutually satisfying relationships
Goal Emphasis	Behavior that stimulates an enthusiasm for meeting the group's goals or achieving excellent performance
Work Facilitation	Behavior that helps achieve goal attainment by such activities as scheduling, coordinating and planning, and by providing the resources such as tools, materials and technical knowledge.

Source: Bowers, D.G., and S. E. Seashore, "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership." *Administrative Science Quarterly*, 1966, p. 247.

Appendix B

Yukl's Taxonomy of Leadership Behaviors

Table 7. Yukl's Taxonomy

Making Decisions	**Planning & Organizing**: Determining long-term objectives and strategies for adapting to environmental change, determining how to use personnel and allocate resources to accomplish objectives, determining how to improve the efficiency of operations, and determining how to achieve coordination with other parts of the organization.
	Problem Solving: Identifying work-related problems, analyzing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions and resolve important problems or crises.
	Consulting & Delegating: Checking with people before making changes that affect them, encouraging suggestions for improvement, inviting participation in decision making, incorporating the ideas and suggestions of others in decisions, and allowing others to have substantial responsibility and discretion in carrying out work activities and making decisions.
Influencing People	**Motivating**: Using influence techniques that appeal to emotion, values, or logic to generate enthusiasm for the work; commitment to task objectives; and compliance with requests for cooperation, assistance, support or resources; also setting an example of proper behavior.
	Recognizing & Rewarding: Providing praise, recognition, and rewards for effective performance, significant achievements, and special contributions.
Building Relations	**Networking**: Socializing informally; developing contacts with people who are a source of information and support; maintaining contacts through periodic interaction, including telephone calls, correspondence, and attendance at meetings and social events.
	Managing Conflict & Team Building: Encouraging and facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification within the organizational unit.
	Supporting & Mentoring: Acting friendly and considerate, being patient and helpful, showing sympathy and support, and doing things to facilitate someone's skill development and career enhancement.
Giving/Seeking Information	**Monitoring Operations & Environment**: Gathering information about work activities, checking on the progress and quality of the work, evaluating the performance of individuals and the organizational unit, and scanning the environment to detect threats and opportunities.
	Clarifying Roles and Objectives: Assigning tasks, communicating a clear understanding of job responsibilities, task objectives, deadlines, and performance expectations, and directing how to do work.
	Informing: Disseminating relevant information about decisions, plans, and activities to people that need it to do their work; answering requests for technical information and telling people about the organizational unit to promote its reputation.
Source: Yukl, Gary A. *Leadership in Organizations* (Englewood Cliffs, NJ: Prentice Hall, 1994), 65.	

Appendix C

Correlation of Leadership Behavior Taxonomies

Table 8. Approximate Correspondence Among Major Taxonomies

Yukl (89)	Mintzberg (73)	Morse & Wagner (78)	Stogdill (63)	Bowers & Seashore (66)	House & Mitchell (74)	Luthans & Lockwood (84)	Page (85)
Supporting	Leader Role		Consideration	Leader Support	Supportive Leadership	Motivating & Reinforcing	Supervising
Consulting					Participative Leadership		
Delegating			Tolerance of Freedom				
Recognizing							
Rewarding							
Motivating		Motivating & Conflict Handling	Production Emphasis	Goal Emphasis	Achievement-oriented Leadership		
Managing Conflict & Team Building			Integration	Interaction Facilitation		Managing Conflict	
Developing		Providing Development				Training & Developing	
Clarifying				Work Facilitation	Directive Leadership		
Planning & Organizing	Resource Allocator; Entrepreneur	Organizing & Coordinating	Initiating Structure			Planning & Coordinating	Planning & Organizing: Strategic Planning
Problem Solving	Disturbance Handler	Strategic Problem Solving	Role Assumption; Demand Reconciliation			Problem Solving & Deciding	Decision Making
Informing	Disseminator	Information Handling				Exchanging Information	Consulting
Monitoring	Monitor					Monitoring & Controlling	Monitoring Indicators, Controlling
Representing	Spokesman; Negotiator; Figurehead		Representing; Influencing Superiors			Interacting with Outsiders; Socializing & Politicking	Representing
Networking & Interfacing	Liaison	Managing Environment & Resources					Coordinating

Source: Bass, Bernard M., *Bass & Stogdill's Handbook of Leadership, Theory, Research & Managerial Applications*, 3rd Edition, Free Press, 1990, p.34

Appendix D

Stratified Systems Theory

Table 9. Stratified Systems Theory Functional Domains

Stratum	Time Span	Functional Domain
VII (Corporation)	20 years	**Systems Domain**—Operates in a nearly unbounded world environment, identifies feasible futures,
VI (Group)	10 years	develops consensus of specific futures to create, and builds required resource bases to create whole systems that can function in the environment. Creates a corporate culture and value system compatible with social values and culture to serve as a basis for organizational policies and climate.
V (Company)	5 years	**Organizational Domain**—Individuals at stratum V operate bounded open systems thus created,
IV (Division)	2 years	assisted by individuals at stratum IV in managing adaptation of those systems within the environment by modification/maintenance/fine tuning of internal processes and climate and by oversight of subsystems.
III (Department)	1 year	**Production Domain**—Runs face-to-face (mutual recognition or mutual knowledge) sub-system
II (Section Chief) I (Shop Floor)	3 months	units, or groups engaged in specific differentiated functions but interdependent with other units or groups, limited by context and boundaries set within the larger system.

Source: Jacobs and Jaques, "Leadership in Complex Systems," In *Human Productivity Enhancement: Organizations and Personnel*, Praeger Publishers, 1987, p. 16.

Appendix E

Additional Demographics Tables

Table 10. AFSC (Career Field) Demographics (%)

CATEGORY			AFSC (Career Field)	SOS (n = 569)	USAF (n = 27,743)
Line	Operations	**Rated Ops**	11XX	27.5	27.0
			12XX	5.8	7.2
		Non-Rated Ops	13XX	10.9	7.7
			14XX	5.1	4.2
			15XX	.9	1.2
			16XX	.2	.3
	Support	**Logistics**	21XX	6.2	5.0
		Support Functions	31XX	1.9	.9
			32XX	2.6	2.1
			33XX	6.7	6.0
			34XX	.7	.4
			35XX	.9	.4
			36XX	3.5	1.7
			38XX	.2	.3
		Acquisition	61XX	1.4	1.5
			62XX	4.0	4.4
			63XX	2.6	2.2
			64XX	1.8	1.3
			65XX	1.1	1.1
		OSI	71XX	.5	.6
Non-Line	Med/ Prof	**Medical**	4XXX	12.3	21.3
		Professional	51XX	2.5	2.2
			52XX	.7	.8
Special Duty AFSCs			8XXX/9XXX	.0	4.4

Source: HQ AFPC Internet Site, "Personnel Statistics," as of 14 January 1998. Categories extracted from AFI 36-2105, *USAF Officer Classification* and AF Visual Aid 36-211.

Table 11. Number of People Supervised (%)

Number Supervised	SOS (n=569)	Cum %
0	28.3	28.3
1 to 5	32.7	61.0
6 to 10	15.6	76.6
11 to 25	9.3	85.9
26 to 50	6.7	92.6
51 to 100	3.2	95.8
More Than 100	4.2	100.0

Table 12. Total Years of Commissioned Service (%)

Years	SOS (n = 569)	Cum %
Less Than 4.0	1.9	1.9
4.1 to 7.0	78.4	80.3
7.1 to 10.0	18.5	98.8
10.1 to 15.0	1.2	100.0

Table 13. Gender Comparison Across Major Career Tracks (%)

Gender	Ops vs. Support		Line vs. Non-Line	
	Ops (n=287)	Support (n=194)	Line (n=481)	Non-Line (n=88)
Male	96.5	79.9	90.0	50.0
Female	3.5	20.1	10.0	50.0

Table 14. Years Commissioned Service (Sub-Groups) (%)

Years	Ops vs. Support		Line vs. Non-Line		Male vs. Female	
	Ops (n=287)	Support (n=194)	Line (n=481)	Non-Line (n=88)	Male (n=477)	Female (n=92)
< 4.0	.3	.5	.4	10.2	1.9	2.2
4.1-7.0	71.4	91.8	79.6	71.6	76.7	87.0
7.1-10.0	27.2	7.2	19.1	14.8	20.1	9.8
10.1-15.0	1.0	.5	.8	3.4	1.3	1.1

Table 15. Number of People Supervised (Sub-Groups) (%)

Number	Ops vs. Support		Line vs. Non-Line		Male vs. Female	
	Ops (n=287)	Support (n=194)	Line (n=481)	Non-Line (n=88)	Male (n=477)	Female (n=92)
0	35.2	26.3	31.6	10.2	30.0	19.6
1 to 5	33.8	23.7	29.7	48.9	32.7	32.6
6 to 10	16.4	13.9	15.4	17.0	15.3	17.4
11 to 20	6.6	11.3	8.5	13.6	8.4	14.1
21 to 50	4.5	8.8	6.2	9.1	5.7	12.0
51 to 100	1.4	6.7	3.5	1.1	3.4	2.0
> 100	2.1	9.3	5.0	.0	4.6	2.2

Appendix F

Survey Instrument

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (*Surname*), GRADE AND DATE		TO	ACTION	SIGNATURE (*Surname*), GRADE AND DATE
1	AWC/CC	Appr		6			
2	SOS/CC	Appr		7			
3				8			
4				9			
5				10			

SURNAME OF ACTION OFFICER AND GRADE	SYMBOL	PHONE	TYPIST'S INITIALS	SUSPENSE DATE
Berry, Maj	ACSC/Sem 40	3-2060	wdb	

SUBJECT	DATE
Leadership Behaviors Survey	17 Nov 97

SUMMARY

1. The Leadership Behaviors Survey at Tab 1 was approved by HQ AU for administration at all Air University schools. This package is requesting the AWC and SOS Commandants' approval to conduct this survey at their schools NLT 19 December 1997.

2. The survey supports an ACSC Research project attempting to define and characterize those critical leadership behaviors needed at the various levels of responsibility in a military organization. The target audience is the student body at each school. The survey, based upon a validated version of Dr. Gary Yukl's Managerial Practices Survey, should take only 5-10 minutes to complete. The survey will be administered by coordinating with the appropriate offices within each school, but will not require additional man-hours on the part of the faculty at either school. Results of the study and survey will be available through ACSC/DR o/a Jun 98.

3. RECOMMENDATION: AWC/CC and SOS/CC approve the administration of this survey by signing the SSS coordination block above.

FOR THE COMMANDANT

DAVID A. MILEWSKI, Lt Col, USAF
Director, Evaluation Division

1 Tab
Leadership Behaviors Survey (AU Control #XXX)

AU SCN 97-47, Exp 31 Jan 98, Per HQ AU/XO

AF FORM 1760, SEP 04 *(EF-V4)*   *(FORM FL02)*   **PREVIOUS EDITION WILL BE USED**

INFORMED CONSENT
Major John D. Garvin, ACSC/DEA, 3-6947

Purpose: This project is investigating how effective leadership skills may vary according to rank, career field, and branch of service. The leadership skills being investigated are those defined by Yukl's taxonomy (1990): informing, consulting and delegating, planning and organizing, problem solving, clarifying roles and objectives, monitoring operations and environment, motivating, recognizing and rewarding, supporting and mentoring, managing conflict and team building, and networking.

Status of Participants: The sample will consist of approximately 1,200 US military officers who are PME students at Air University. The company grade officers will be USAF students at Squadron Officer School (about 600). The field grade officers will be USAF, USN, USMC, and USA students (about 500) at Air Command and Staff College, and the USAF, USN, USMC, and USA students at Air War College (about 100).

Use of Data: All data will be kept confidential and are protected by the Privacy Act of 1974. All results will be reported as group summaries. No participant's name will appear in any reports, papers, or publications resulting from the study.

Risks to Participants: There are no risks associated with participation in this study. No known data or results will be submitted for inclusion in your personnel files.

Feedback to Participants: Copies of the final report will be available from ACSC/DER.

How to Participate: The entire survey requires about 5-10 minutes to complete. Your seminar leader or flight commander will provide instructions on distribution and collection of the surveys. Detach this sheet after completing, return to your flight commander/seminar leader.

Although this will take some of your valuable time, you will be helping to improve the leadership of those who will follow you. Therefore, your thoroughness and honesty are essential to obtaining valid results and is greatly appreciated.

Consent of Participant: Please read and initial each statement.

_____ I have read this page and agree to participate.

_____ I consent to the use of this information for the study.

_____ I understand that I can receive the results through the report of this study, obtainable through ACSC/DER.

Participant's Printed Name   Participant's Signature   Date

**AFTER SIGNING, DETACH THIS PAGE, GIVE IT TO YOUR SEMINAR LEADER OR
FLIGHT COMMANDER, AND CONTINUE THE SURVEY**

PART I. DEMOGRAPHIC INFORMATION

In Part I, please circle the appropriate answer to each demographic category. If a particular demographic does not apply, please skip to the next question.

1. **Rank:**   O-3   O-4   O-5   O-6

2. **Total Years Selected BPZ (All Grades):** N/A   1   2   3   4   5

3. **Service:**   Army   Navy   Air Force   Marines

4. **Component:**   AD   Reserve   Guard

5. **School:**   SOS   ACSC   AWC

6. **Total Years of *Commissioned* Service**:

   < 4.0   4.0 to 7.0   7.1 to 11.0   11.1 to 15.0   >15.0

7. **AFSC/Career Field (Air Force Only)**:

   11XX (Pilot)   32XX (CE)   52XX (Chaplain)

   12XX (Nav/EW)   33XX (Comm/Comp)   61XX (Sci/Research)

   13XX (Space/C2/Missile)   34XX (Services)   62XX (Dev Eng)

   14XX (Intel)   35XX (PA)   63XX (Acquisition)

   15XX (Weather)   36/37XX (Personnel)   64XX (Contract)

   16XX (Ops Support)   38XX (Manpower)   65XX (Finance)

   21XX (Logistics)   4XXX (Medical)   71XX (OSI)

   31XX (SP)   51XX (Law)

8. **Gender:**   Male   Female

9. **Number of People Supervised (Directly and Indirectly) in *Most Recent Job*?**

   0   1-5   6-10   11-20   21-50   51-100   101+

Effective leadership requires many different types of behavior. Eleven categories of behavior required for effective leadership are listed below. Please use the **scale at right to RATE the importance** of each leadership behavior category according to its overall importance or relevance for effective performance in your **most recent job before becoming a student** at Maxwell AFB.	**1 = Not Relevant** **2 = Slightly Important** **3 = Moderately Important** **4 = Very Important** **5 = Absolutely Essential**

_____   **Informing**: Disseminating relevant information about decisions, plans, and activities to people that need it to do their work; answering requests for technical information and telling people about the organizational unit to promote its reputation.

_____   **Consulting and Delegating**: Checking with people before making changes that affect them, encouraging suggestions for improvement, inviting participation in decision making, incorporating the ideas and suggestions of others in decisions, and allowing others to have substantial responsibility and discretion in carrying out work activities and making decisions.

_____   **Planning and Organizing**: Determining long-term objectives and strategies for adapting to environmental change, determining how to use personnel and allocate resources to accomplish objectives, determining how to improve the efficiency of operations, and determining how to achieve coordination with other parts of the organization.

_____   **Problem Solving**: Identifying work-related problems, analyzing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions and resolve important problems or crises.

_____   **Clarifying Roles and Objectives**: Assigning tasks, providing direction in how to do the work, and communicating a clear understanding of job responsibilities, task objectives, deadlines, and performance expectations.

_____   **Monitoring Operations and Environment**: Gathering information about work activities, checking on the progress and quality of the work, evaluating the performance of individuals and the organizational unit, and scanning the environment to detect threats and opportunities.

_____   **Motivating**: Using influence techniques that appeal to emotion, values, or logic to generate enthusiasm for the work; commitment to task objectives; and compliance with requests for cooperation, assistance, support or resources; also setting an example of proper behavior.

_____   **Recognizing and Rewarding**: Providing praise, recognition, and rewards for effective performance, significant achievements, and special contributions.

_____   **Supporting and Mentoring**: Acting friendly and considerate, being patient and helpful, showing sympathy and support, and doing things to facilitate someone's skill development and career enhancement.

_____   **Managing Conflict and Team Building**: Encouraging and facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification within the organizational unit.

_____   **Networking**: Socializing informally; developing contacts with people who are a source of information and support; maintaining contacts through periodic interaction, including telephone calls, correspondence, and attendance at meetings and social events.

Based upon **your most recent job before becoming a student** at Maxwell AFB, rank order the **three MOST important/relevant** behaviors to being a successful leader in that job. Assign a "1" to the most important, a "2" to the second most important, and a "3" to the third most important.

_____ **Informing**

_____ **Consulting and Delegating**

_____ **Planning and Organizing**

_____ **Problem Solving**

_____ **Clarifying Roles and Objectives**

_____ **Monitoring Operations and Environment**

_____ **Motivating**

_____ **Recognizing and Rewarding**

_____ **Supporting and Mentoring**

_____ **Managing Conflict and Team Building**

_____ **Networking**

Based upon **your most recent job before becoming a student** at Maxwell AFB, rank order the **three LEAST important/relevant** behaviors to being a successful leader in that job. Assign a "1" to the least important, a "2" to the second least important, and a "3" to the third least important.

_____ **Informing**

_____ **Consulting and Delegating**

_____ **Planning and Organizing**

_____ **Problem Solving**

_____ **Clarifying Roles and Objectives**

_____ **Monitoring Operations and Environment**

_____ **Motivating**

_____ **Recognizing and Rewarding**

_____ **Supporting and Mentoring**

_____ **Managing Conflict and Team Building**

_____ **Networking**

Based upon **your most recent job before becoming a student** at Maxwell AFB, check **(X)** the one behavior in which you feel you need the most improvement.

_____	**Informing**
_____	**Consulting and Delegating**
_____	**Planning and Organizing**
_____	**Problem Solving**
_____	**Clarifying Roles and Objectives**
_____	**Monitoring Operations and Environment**
_____	**Motivating**
_____	**Recognizing and Rewarding**
_____	**Supporting and Mentoring**
_____	**Managing Conflict and Team Building**
_____	**Networking**

All responses should be based upon *your most recent job*

Please return your completed survey to your seminar leader or flight commander.

Thank you for your time and cooperation!

Appendix G

Additional Results and Supporting Tables

Table 16. Importance of Yukl's Behaviors

Importance of Behavior (In Order of Precedence)	Rank Order, According to:		
	Descriptive	Frequency (M1)	Results (Sum)
1. Informing	1	2	3
2. Planning & Organizing	3	1	4
3. Problem Solving	2	3	5
4. Consulting & Delegating	4	4	8
5. Clarifying Roles	5	5	10
6. Motivating	6	6	12
7. Monitoring Operations	7	7	14
8. Recognizing & Rewarding	8	10	18
9. Managing Conflict	10	8	18
10. Supporting & Mentoring	9	9	18
11. Networking	11	11	22

Table 17. Significance Tests (2-Tail): Line versus Non-Line

Behavior	Line versus Non-Line				
	Line (n=481)		Non-Line (n=88)		p
	Mean	Std Dev	Mean	Std Dev	
Inform	4.4	.7	4.5	.7	*
Problem Solve	4.2	.8	4.3	.7	*
Plan	4.1	.9	4.0	.9	*
Consult	4.0	.8	4.2	.6	.03
Clarify	3.9	.9	4.1	.9	*
Motivate	3.8	1.0	4.3	.9	.01
Monitor Ops	3.8	.9	3.8	1.0	*
Recognize	3.7	1.0	4.0	.8	.01
Manage Conflict	3.7	1.0	3.9	1.0	.02
Support	3.7	1.0	4.1	.8	.01
Network	3.3	1.1	3.5	1.0	*

Note: * indicates significance > .05 (no significant differences)

Table 18. Significance Tests (2-Tail): Male versus Female

Behavior	Male vs. Female				
	Male (n=477)		Female (n=92)		p
	Mean	Std Dev	Mean	Std Dev	
Inform	4.4	1.1	4.4	.9	*
Problem Solve	4.2	1.0	4.2	.9	*
Plan	4.1	1.0	4.2	1.0	*
Consult	4.0	.9	4.2	.9	.01
Clarify	3.9	.9	4.1	.9	*
Motivate	3.8	1.0	4.3	.6	.01
Monitor Ops	3.8	1.0	3.8	.9	*
Recognize	3.7	.8	4.0	.8	.01
Manage Conflict	3.7	.8	3.9	1.0	*
Support	3.7	.9	3.9	.7	.03
Network	3.3	.7	3.5	.7	.05

Note: * indicates significance > .05 (no significant differences)

Table 19. Relative Importance (Operations Career Track) (%)

Behavior	M1	M2	M3	Σ_M	L1	L2	L3	Σ_L
Inform	25.1	14.6	13.6	53.3	1.7	.7	3.8	6.2
Consult	2.4	13.2	11.5	27.1	3.8	6.6	7.7	18.1
Plan	23.7	18.5	14.6	56.8	.0	3.8	4.5	8.3
Problem	14.6	14.3	11.1	40.0	1.7	5.6	4.9	12.2
Clarify	11.5	7.0	10.1	28.6	4.9	9.4	9.1	23.4
Monitor	9.1	9.8	6.6	25.5	5.9	8.7	10.5	25.1
Motivate	8.0	8.7	9.4	26.1	3.5	8.0	8.7	20.2
Recognize	.3	2.4	5.2	7.9	7.0	9.1	13.2	29.3
Support	1.4	4.5	7.7	13.6	12.5	17.8	11.1	41.4
Manage	3.1	3.8	6.6	13.5	7.0	19.5	16.0	42.5
Network	.7	3.1	3.5	7.3	51.9	10.8	10.5	73.2

n = 287

Table 20. Relative Importance (Support Career Track) (%)

Behavior	M1	M2	M3	Σ_M	L1	L2	L3	Σ_L
Inform	15.5	18.0	14.4	47.9	1.0	5.7	1.5	8.2
Consult	9.3	10.8	13.4	33.5	6.2	3.6	10.3	20.1
Plan	27.3	22.2	10.3	59.8	3.6	3.1	2.1	8.8
Problem	13.9	11.9	7.2	33.0	2.1	4.1	4.6	10.8
Clarify	10.8	9.8	4.6	25.2	5.7	8.8	14.4	28.9
Monitor	4.6	2.6	9.3	16.5	6.7	12.4	7.2	26.3
Motivate	8.8	9.8	7.2	25.8	8.8	11.3	10.3	30.4
Recognize	2.6	5.7	9.8	18.1	8.2	7.2	10.8	26.2
Support	1.5	2.1	6.7	10.3	6.7	18.6	14.9	40.2
Manage	2.1	6.2	9.3	17.6	9.3	15.5	12.9	37.7
Network	3.6	1.5	7.7	12.8	41.8	9.8	10.8	62.4

n = 194

Table 21. Relative Importance (Line Officers) (%)

Behavior	M1	M2	M3	Σ_M	L1	L2	L3	Σ_L
Inform	21.2	16.0	13.9	51.1	1.5	2.7	2.9	7.1
Consult	5.2	12.3	12.3	29.8	4.8	5.4	8.7	18.9
Plan	25.2	20.0	12.9	58.1	1.5	3.5	3.5	8.5
Problem	14.3	13.3	9.6	37.2	1.9	5.0	4.8	11.7
Clarify	11.7	7.9	7.9	27.5	5.2	9.1	11.2	25.5
Monitor	7.3	6.9	7.7	21.9	6.2	10.2	9.1	25.5
Motivate	3.3	9.1	8.5	25.9	5.6	9.4	9.4	24.4
Recognize	1.2	3.7	7.1	12.0	7.5	8.3	12.3	28.1
Support	1.5	3.5	7.3	12.3	10.2	18.1	12.7	41.0
Manage	2.7	4.8	7.7	15.2	7.9	17.9	14.8	40.6
Network	1.9	2.5	5.2	9.6	47.8	10.4	10.6	68.8

n = 481

Table 22. Relative Importance (Non-Line Officers) (%)

Behavior	M1	M2	M3	ΣM	L1	L2	L3	ΣL
Inform	26.1	10.2	8.0	44.3	1.1	6.8	5.7	13.6
Consult	6.8	11.4	9.1	27.3	5.7	6.8	5.7	18.2
Plan	22.7	11.4	14.8	48.9	8.0	3.4	3.4	14.8
Problem	12.5	9.1	9.1	30.7	1.1	5.7	5.7	12.5
Clarify	12.5	18.2	4.5	35.2	5.7	13.6	8.0	27.3
Monitor	1.1	12.5	9.1	22.7	11.4	10.2	14.8	36.4
Motivate	8.0	10.2	18.2	36.4	2.3	9.1	5.7	17.1
Recognize	2.3	4.5	6.8	13.5	8.0	10.2	6.8	25.0
Support	4.5	6.8	9.1	20.4	6.8	11.4	11.4	29.6
Manage	3.4	4.5	6.8	14.7	4.5	14.8	11.4	30.7
Network	.0	1.1	4.5	5.6	45.5	8.0	21.6	75.1

n = 88

Table 23. Relative Importance (Males) (%)

Behavior	M1	M2	M3	ΣM	L1	L2	L3	ΣL
Inform	21.0	16.4	12.8	50.2	1.7	1.9	2.5	6.1
Consult	4.6	11.9	11.9	28.4	5.0	5.9	8.4	19.3
Plan	25.4	19.9	13.6	58.9	1.9	3.6	3.8	9.3
Problem	14.3	13.4	10.3	38.0	1.9	4.8	4.2	10.9
Clarify	11.7	8.4	8.4	28.5	5.2	9.6	10.5	25.3
Monitor	7.1	8.2	7.8	23.1	5.9	9.4	9.9	25.2
Motivate	8.0	9.0	9.6	26.6	5.5	9.4	10.1	25.0
Recognize	1.5	3.6	6.5	11.6	7.5	8.8	11.5	27.8
Support	1.7	3.6	7.1	12.4	10.3	17.6	12.8	40.7
Manage	3.1	3.8	6.7	13.6	7.3	18.2	14.5	40.0
Network	1.7	1.9	5.2	8.8	47.8	10.7	11.9	70.4

n = 477

Table 24. Relative Importance (Females) (%)

Behavior	M1	M2	M3	Σ_M	L1	L2	L3	Σ_L
Inform	27.2	8.7	14.1	50.0	.0	10.9	7.6	18.5
Consult	9.8	13.0	10.9	33.7	4.3	4.3	7.6	16.2
Plan	21.7	12.0	10.9	44.6	5.4	3.3	2.2	10.9
Problem	13.0	8.7	5.4	27.1	1.1	6.5	8.7	16.3
Clarify	9.8	15.2	2.2	27.2	5.4	10.9	12.0	28.3
Monitor	2.2	5.4	8.7	16.3	13.0	14.1	10.9	38.0
Motivate	9.8	10.9	12.0	32.7	3.3	8.7	2.2	14.2
Recognize	1.1	5.4	9.8	16.3	7.6	7.6	10.9	26.1
Support	3.3	6.5	9.8	19.6	6.5	14.4	10.9	31.7
Manage	1.1	9.8	12.0	22.9	7.6	13.0	13.0	33.6
Network	1.1	4.3	4.3	9.7	45.7	6.5	14.1	66.3

n = 92

Table 25. Importance (By Career Field) (<u>M</u>)

Behavior	Ops n=287	NR Ops n=97	Supt n=194	Logistic n=35	MsnSup n=94	Med n=70	Med/Pro n=88	Acq n=62
Inform	4.3	4.4	4.4	4.5	4.4	4.5	4.5	4.3
Consult	3.9	4.1	4.1	4.1	4.2	4.2	4.2	4.0
Plan	4.0	4.1	4.3	4.2	4.4	4.1	4.0	4.3
Problem	4.1	4.2	4.2	4.3	4.2	4.3	4.3	4.2
Clarify	3.8	4.1	4.1	4.1	4.1	4.2	4.1	3.9
Monitor	3.7	3.9	3.9	4.0	3.9	3.9	3.8	3.8
Motivate	3.8	3.9	3.9	4.2	4.0	4.4	4.3	3.5
Recognize	3.6	3.8	3.9	4.1	4.0	4.2	4.0	3.8
Support	3.6	3.8	3.8	3.7	3.8	4.2	4.1	3.7
Manage	3.6	3.8	3.8	3.6	4.0	4.1	4.0	3.6
Network	3.1	3.3	3.6	3.4	3.7	3.5	3.5	3.7

Note: Ops = Operations (11/12XX); NR Ops = Non-Rated Operations (13/14/15/16XX); Supt = Support (2XXX,3XXX,6XXX,7XXX); Logistic = Logistics (21XX); Msn Sup = Mission Support (31/32/33/34/35/36/37/38XX); Med = Medical (4XXX); Med/Pro = Medical and Professional (4XXX, 51/52XX); Acq = Acquisiton (61/62/63/64/65XX)

Table 26. Needs Improvement (%)

Behavior	Ops vs. Support		Line vs. Non-Line		Male vs. Female	
	Ops (n=287)	Support (n=194)	Line (n=481)	Non-Line (n=88)	Male (n=477)	Female (n=92)
Inform	6.3	6.7	6.4	4.5	6.3	5.4
Consult	4.9	11.9	7.7	12.5	8.0	10.9
Plan	16.4	13.9	15.4	18.2	15.7	16.3
Problem	10.5	8.2	9.6	6.8	9.4	7.6
Clarify	8.0	5.7	7.1	5.7	7.1	5.4
Monitor	5.2	4.1	4.8	2.3	4.4	4.3
Motivate	15.0	16.5	15.6	13.6	15.9	12.0
Recognize	7.7	6.7	7.3	10.2	7.5	8.7
Support	9.4	5.7	7.9	4.5	8.4	2.2
Manage	5.2	8.2	6.4	14.8	6.3	15.2
Network	11.5	12.4	11.9	6.8	10.9	12.0

Glossary

ACSC	Air Command and Staff College
AFB	Air Force Base
AFI	Air Force Instruction
AFPC	Air Force Personnel Center
AFSC	Air Force Specialty Code (job task or career field)
ANOVA	Analysis of Variance
DAP	Department of the Army Pamphlet
DOD	Department of Defense
HQ	Headquarters
LBDQ	Leadership Behavior Description Questionnaire
$\underline{M}$	Mean
MBS	Managerial Behavior Survey
MPS	Managerial Practices Survey
OSU	Ohio State University
$\underline{p}$	Significance Factor
SLDI	Situational Leadership Development Instrument
SOS	Squadron Officer School
SPSS	Data Input and Analysis Software
SST	Stratified Systems Theory
STD DEV	Standard Deviation
USAF	United States Air Force
$\underline{\Sigma}$	Summation

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